Step **160** provides that each base station spread the broadcast channel special timing symbol with only a predetermined first short code, and that each mobile station have at least a first matched filter to despread the first short code. Step **162***a* includes the despreading of every received broadcast channel special timing symbol to yield the identification of distinct transmission paths in Step **162**.

Step **160** provides that each mobile station include a second matched filter, with the first matched filter operatively connected to a first antenna and the second matched filter operatively connected to a second antenna. Then, Step **162** includes the identification of transmissions paths from the base station to each of the mobile station antennas, whereby the diversity of the mobile station receiver is enhanced with the use of independent transmission paths.

Step **160** provides that the broadcast channel data and reference symbols are spread with a predetermined second short code, and the transmitted broadcast and traffic channel messages are modulated at a first chip rate. Step **160** also provides that the mobile station include a broadcast channel RAKE receiver with a plurality of fingers. Then, Step **164** assigns a broadcast channel RAKE receiver finger to each transmission path identified in Step **162** to generate short and long codes, and in response to generated short and long codes, generates a clock signal at the first chip rate. The chip rate is generated for use by every channel of the assigned transmission path.

Step **160** provides that each base station assign each mobile a third short code, unique to each mobile station. The base station spreads the traffic channel message to a mobile station with its assigned third short code. Each mobile station includes a traffic channel RAKE receiver with a plurality of fingers. Step **164** includes multiplying the broadcast channel data and reference symbols by the long code to generate a long code despread signal. Step **164** is divided into sub-steps. Sub-step **164₁**, for each transmission path identified in Step **162**, identifies the transmitted traffic channel messages spread with the mobile station's third short code. Sub-step **164₂**, for each transmission path identified in Step **162**, assigns a traffic channel RAKE receiver finger to the corresponding broadcast channel RAKE receiver finger assigned in Step **164**. Sub-step **164₃**, in response to the first chip rate clock signal generated in Step **164**, generates the third short code. Sub-step **164₄** multiplies the long code despread signal generated in Step **164** by the third short code generated in Sub-step **164₃**, to completely despread the traffic channel message.

In some aspects of the invention Step **160** provides that each mobile station includes a transmitter. Then, Step **162** includes receiving communications from at least two base stations, a first base station and a second base station. Step **162** includes identifying at least one transmission path between each base station and the mobile station. Further steps (not shown), follow Step **164**. Step **164***g*, in response to the despreading of the broadcast channel of the first base station, transmits a request to the second base station to adjust the timing of the traffic channel transmission, whereby the timing differences between the first and second base stations are minimized. Step **164***h* receives the adjusted traffic channel transmission of the second base station, and Step **164***i*, in response to Step **164***f*, sums the combined traffic channel demodulated data symbols for the first and second base station, whereby diversity is increased with the use of two base stations.

Step **160** includes the broadcast and traffic control messages being organized into a series of time multiplexed slots. Step **164***b* includes broadcast and traffic channel RAKE

receivers estimating weights and phase shifts to apply, to the demodulation of traffic channel data symbols in Step **164***c*, through an interpolation process using the weight and phase shift estimates from present, as well as succeeding slots. In other aspects of the invention, Step **160** includes the traffic channel data symbols including a transmit power control (TPC) bit. Step **164***c* includes demodulating the TPC bit with the traffic channel data symbols, and Step **164***b* includes broadcast and traffic channel RAKE receivers estimating weights and phase shifts, to apply to the demodulation of the TPC bit in Step **164***c*, through an extrapolation process using the weight and phase shift estimates from present, as well as previous slots.

FIG. **7** is a flow chart illustrating steps in a method for a mobile station to receive base station communications in accordance with an aspect of the present invention. Step **170** provides a code division multiple access (CDMA) communication system having a plurality of base stations asynchronously transmitting to a plurality of mobile stations. The communications from a base station to a mobile station being formatted in a plurality of coded channels including a broadcast channel message propagating along at least one transmission path, with a corresponding path delay. The broadcast channel message includes predetermined time multiplexed reference and special timing symbols. Step **172** despreads at least one broadcast channel special timing symbol. Step **174** identifies a transmission path in response to each broadcast channel special timing symbol despread in Step **172**. Step **176** despreads the broadcast channel reference symbols for each transmission identified in Step **174**. Step **178**, in response to the broadcast channel reference symbols despread in Step **176**, identifies at least one base station from which transmissions are being received. Step **180** is a product, a method of receiving asynchronous base station messages where the codes and timing for each communicating base station are derived by the mobile station.

In some aspects of the invention, Step **170** provides that each base station transmit at least one traffic channel message, unique to each mobile station. Each traffic channel message includes time multiplexed data symbols. Further steps, following Step **178**, are included. Step **178***a*, in response channel timing determined in Step **172**, and the base station identification made in Step **178**, despreads the broadcast and traffic channel messages for each transmission path identified in Step **174**. Step **178***b*, in response to the broadcast channel reference symbols despread in Step **178***a*, demodulates the broadcast channel reference symbols. Step **178***c*, in response to Step **178***b*, interpolates weights and phase shifts for demodulating the traffic channel data symbols. Step **178***d*, for each base station identified in Step **178**, combines the traffic channel data symbols demodulated from each transmission path identified in Step **174**, with the weights and phase shifts interpolated in Step **178***c*, whereby the signal to noise ratio of a base station transmission is improved.

Step **170** provides that the traffic channel include predetermined time multiplexed reference symbols. Then Step **178***a* includes despreading the traffic channel reference symbols, Step **178***b* includes demodulating the traffic channel reference symbols, and Step **178***c* includes interpolating weights and phase shifts in response to the demodulated traffic channel reference symbols.

FIG. **8** is a flow chart illustrating the present invention's method for a mobile station to synchronize communications from at least two asynchronously transmitting base stations. Step **200** provides a code division multiple access (CDMA)